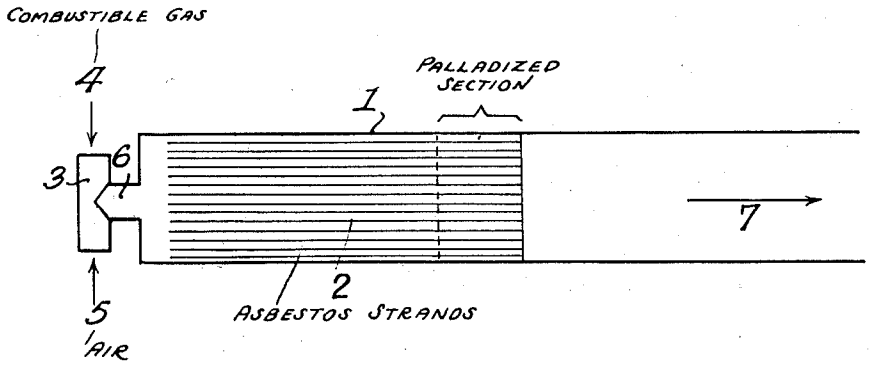
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BURNER FOR GASEOUS FUELS

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Inventor: Richard Rigby

By his Attorney: _____

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BURNER FOR GASEOUS FUELS

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2 Claims. (Cl. 158—99)

This invention relates to burners for gaseous fuels, such as hydrocarbon gases, more particularly to burners in which the gases can be burnt with a smaller quantity of oxygen-containing gases, such as air, than is required for complete combustion, in order to obtain reducing or carburising gases. Such gases are often required in connection with the heat treatment of metals in furnaces, in which a protective reducing or a carburising atmosphere is to be maintained.

There are known a number of burners which operate quite satisfactorily when complete combustion is to be attained, but if incomplete combustion is desired for the production of a highly reducing gas, special measures, such as the presence of hot refractories for maintaining the flame, are often required.

It is an object of the invention to provide a simple burner which will operate satisfactorily both when incomplete and when complete combustion is aimed at.

According to the invention the burner comprises a tubular member, which is packed lightly with threads or strands of refractory fibres running substantially longitudinally with regard to the tubular member, the combustible gas and the oxygen-containing gas being premixed before they are admitted to the packed part of the tubular member and burning steadily at the end of the packing, where a so-called surface combustion takes place. The threads are preferably made of asbestos fibres. At the end where the flame is formed, or over a greater part or the whole of their length the threads may be made of asbestos provided with a coating of palladium or other catalytic substance. A longitudinal section of one form of the invention is diagrammatically shown in the accompanying drawing. In this drawing 1 is a tubular member; 2 is a packing of asbestos strands palladized toward the egress end of the burner as indicated; 3 is a duct into which from 4 the combustible gas is admitted and into which from 5 air or an oxygen containing gas is admitted; 6 is the inlet through which the mixed gases enter the tubular member 1; the products of the combustion and any unburnt gas travel in the direction of the arrow 7.

In a particular embodiment of the invention the burner comprises a cylindrical tube, which at least over part of its length is filled with asbestos strands loosely packed in the tube and extending parallel to the axis of the tube, thereby offering a minimum resistance to the flow of gases through the tube. One end of the tube is connected to an inlet for the mixture of combustible and oxygen-containing gases. The burner may be placed in a combustion chamber, which is likewise of tubular shape and surrounds the burner tube. At the front end of the burner, where the combustion takes place, the asbestos fibres may be palladized to promote combustion. At the back end of the burner the ends of the asbestos strands may be clamped between rings or other retaining means so as to keep the fibres in place. The tube in which the fibres are packed is conveniently made of a suitable metal, although, if necessary, refractory material might be used for this part. The asbestos itself may be ordinary commercial asbestos, or may have been subjected to a preliminary treatment, such as precalcining or drying.

A burner as described is extremely simple and cheap to manufacture. It has all the advantages of surface combustion without the necessity of incorporationg specially porous refractory material, such as plugs of refractory perforated with a large number of holes. The resistance it offers to the gases flowing through is comparatively small.

What I claim is:

1. In a burner of the class described the combination comprising a tubular body member, means adapted to admit combustible gases and an oxygen containing gas to said tubular body member, gas egress means from said tubular body member and a refractory packing material in said tubular body member, said refractory packing material comprising strands of refractory material loosely packed and disposed longitudinally along a portion of the length of said tubular body member, said refractory strands being palladized towards the gas egress end of said body member whereby combustion of the egress gases is promoted.

2. In a burner of the class described the combination comprising a body member, combustible gas ingress and egress means in said body member, and asbestos strands disposed longitudinally along a portion of the length of the body member, said asbestos strands being palladized towards the egress end, whereby combustion of said combustible gases at the egress end of said body member is promoted.

RICHARD RIGBY.